Government of Canada
Environmental Assessment Review

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November 24, 1983

RE: ALASKA HIGHWAY GAS PIPELINE PROJECT

Dear Sir/Madam,

Because of your past interest in the Alaska Highway Gas Pipeline Project I have attached, for your information, a paper prepared by the Northern Pipeline Agency and submitted by Senator H.A. (Bud) Olson, Minister responsible for NPA, discussing the pipeline easement through the Yukon with particular reference to the Ibex Pass section. The paper explains the Minister's rationale for accepting the Ibex Pass alternative.

Yours sincerely,

Greyell

fr P.J.B. Duffy
Executive Secretary
Alaska Highway Gas Pipeline
Environmental Assessment Panel

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ACCESS TO THE IBEX

In its report following the 1981 hearing the Environmental Assessment Panel expressed itself as follows in Conclusion 6, Page 29:

> "The Panel was satisfied that, even in the most environmentally sensitive route, the Ibex Pass, the Proponent has the intention to minimize environmental impacts and to carry out the construction in an environmentally acceptable way. The principal environmental concerns, in the view of the Panel, will relate to the degree of new access provided to significant wildlife areas close to a major population centre, and the extent to which proposed routes will maintain or restrict options on a link to a Dempster Lateral."

The Agency shares the view of the Panel that increased access to the Ibex Pass following construction is the principal environmental objection to the use of the Ibex Pass routing. Like the Panel, the Agency is satisfied that environmental impacts of construction can be minimized and it will require of the company adequate construction plans to ensure this.

Concerning access to the Ibex Pass, there is currently a dirt road that is passable by 2-wheel drive vehicles for part of the year and by 4-wheel drive vehicles and/or snowmobiles for almost the entire year. Thus significant access already exists. The company proposes to improve this road in order to facilitate pipeline construction and, following construction, to render the road as inaccessible as possible.

As a result of the Panel's recommendation the Yukon Territorial Government commissioned a study of possible land use strategies for the area. Some of these options envision the use of the Ibex Pass as a wildlife display area to which access would be controlled. Control would also be exercised over the various land uses which could occur within the Ibex. The study report suggests that this result could be accomplished in concert with construction of the pipeline.

The Agency has supported this initiative and will use its influence and expertise to assist in the development of this management plan. For example, it could condition the construction plans so as to contribute towards the objectives of the management plan.

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DEMPSTER LATERAL CONNECTIONS

The Panel also expressed concern on the extent to which proposed routes would maintain or restrict options on a link to a Dempster Lateral.

There are currently proposed two alternate routes for this link in the vicinity of Whitehorse. One would follow the Old Dawson Trail and link with the main pipeline at a point west of Whitehorse essentially where both the First Whitehorse route and the Ibex Pass route commences. The other would follow the Klondike Highway and connect to the main pipeline either at the point where the West Whitehorse cut-off commences on the route recommended by the Panel or at the east end of the Ibex Pass if that route is used.

There is no technical reason why either of these two routes could not be used for the Dempster Lateral with the Ibex Pass route for the main pipeline. The choice can be determined on the merits of each route at the time it is decided to proceed with the Dempster Lateral. Leading to this decision will be an Environmental Assessment and Review process followed by National Energy Board hearings and the granting of a certificate.

Although a choice of the Kondike Highway route would be more costly with the Ibex Pass route than with the First Whitehorse route because of the net additional .35 km of pipe required, this cost differential represents less than 3% of the cost of the Dempster Lateral and is not of itself, therefore, sufficient to pre-judge the appropriateness of either route.

ANALYSIS OF THE ROUTE RECOMMENDED BY THE PANEL

The Agency, before accepting the company's recommended route through the Ibex Pass and after studying the Panel's deliberations and recommendations on the environmental issues involved took the following additional factors into account in relation to the alternative route proposed by the Panel.

Socio-Economic

There are a number of major socio-economic concerns relating to the First Whitehorse - West Whitehorse cut-off route which are not present or present only to a very minor degree in the Ibex Pass route.

A number of agricultural-residential lots, potential residential areas and a stream protection and water supply area are directly affected. In addition, the route comes close to other agricultural-residential lots, residential lots, a commercial-industrial area and a proposed industrial area.

The whole area west and north-west of Whitehorse is designated for development of residential sub-divisions and particularly small acreage agricultural-residential areas for which there is a constant and heavy demand in Yukon. In June of 1982 the Whitehorse Indian Band laid claim to a significant parcel of land which lies along the First Whitehorse route recommended by the Panel for a distance of approximately 19.3 kilometres.

Additionally, there is a likelihood of substantial above-ground construction techniques being necessary in the Takhini Valley area thus increasing the degree of interference with land uses and introducing a major aesthetic problem. It could be the largest continuous section of above ground construction on the entire pipeline system.

Such above ground construction would require approximately 350,000 cubic metres of select granular material which would have to be obtained by mining and crushing in reasonably close proximity to the pipeline and the Alaska Highway. The location and operations for such open cast mines and of the crushing facilities along with transportation required to and from the crushers would be matters of public and environmental concern.

There are several long sections where the pipeline would be located on hillsides. These sections would be clearly visible for considerable distances from both the Alaska and the Klondike highways.

Safety factors clearly favour the Ibex route rather than the route recommended by the Panel.

Furthermore, the First Whitehorse-West Whitehorse cut-off route would traverse much more deeply a mineralized area known as the Whitehorse Copper Belt, where mining activity has occurred since the turn of the century. A high potential exists either to prevent exploration and development of mineral occurrences or to have the pipeline company incur major expenses to compensate owners of mineral properties to which access is restricted or denied.

Geotechnical

At the time when the Panel held its hearings substantial geotechnical data along the First Whitehorse route was available although little was available for the West Whitehorse cut-off. The full significance of these data in terms of pipeline construction, however, were not widely known at that time and only became better understood after results were available from the Quill Creek test site and after further engineering analysis was done.

Thaw settlement in permafrost areas presents significant problems in terms of the structural integrity of the pipeline and on its costs of construction and operation. Thaw settlement requires the use of costly and special mitigative techniques, for example the total excavation of the frost susceptible soils and their replacement with granular material or the use of an above ground construction mode with its attendant problems previously mentioned.

The First Whitehorse route contains 17 kilometres of ice-rich detrimental permafrost subject to thaw settlement problems, the longest of such sections anywhere on the pipeline system's entire route. The West Whitehorse cut-off does not present permafrost problems but would involve substantial rock excavation and grading.

The Ibex Pass route, on the other hand, is, as stated by the Panel, the best of the available routes from a geotechnical point of view.

Costs of the Route Recommended by the Panel

The company submitted cost estimates for the various main line routes in combination with the two possible Dempster Laterals. The use of the Ibex Pass for the main line and the Old Dawson Trail for the Dempster Lateral would cost $171.7 million, the lowest cost of the eleven alternate route combinations. The cost of the Panel's recommended route and the Old Dawson Trail for the Dempster Lateral would be $199.9 million, the fourth highest of the combinations. Thus, if the Old Dawson Trail is the route chosen for the Dempster Lateral the company will save $28.2 million by using the Ibex route rather than the route recommended by the Panel for the main line. The above difference is only for the direct cost; it would be increased by items such as project financing, interest during construction, management costs, contingency requirements, etc. Based on pipeline experience of recent years, the total difference in cost of using the Panel's recommended route would be approximately $55 million.

On the other hand, if the Panel's recommended route had been accepted, along with a subsequent choice of the Klondike Highway route for the Dempster Lateral, the cost would have been $187.4 million. This would be some $15.7 million more than the company's selected combination. In this case the total cost difference of accepting the Panel's recommended route would have been some $30 million.

It should be remembered that all of the company's cost estimates assume that the combination of routes is selected in such a way that the most appropriate pipe sizes are used throughout. To the extent that this does not happen the cost of all route combinations would increase and the above differences in cost would likely increase, perhaps substantially.

Excluding the cost of any Dempster Lateral, the cost per kilometre of the route recommended by the Panel is 13.5% higher than the cost per kilometre for the Ibex route. Also, the Panel's route is 8.6 kilometres or 10% longer than the Ibex route. This increase in unit cost encountered using the Panel's route is due to extensive above ground construction to mitigate against thaw settlement in detrimental permafrost areas, and much greater costs of rock grading and rock ditching elsehwere on the route. These two factors would add $12 million and $7.6 million respectively to the cost of the Panel's recommended route. The balance of the difference of $28.2 million is accounted for by the additional length of the Panel's recommended route. Once again, these differences would almost double when indirect cost factors such as interest and overhead are considered.

ABY'fh
Sept.12/83

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